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Planning
NMFS Strategic Plan

DEVELOPMENT OF NMFS' SOCIAL SCIENCES PLAN

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SUMMARY OF REVISIONS:

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Development of NMFS Social Sciences Plan
and FY2001 Budget Initiative

Background:
ST1 staff were asked by the Science Board to assess the staffing requirements for augmenting a social sciences capability within the Agency, and to develop alternatives for implementing the program. Based on Science Board guidance, site visits were made to each NMFS region to determine current versus minimum FTE needs within each region. 'Minimum' was defined as the level needed to ensure that NMFS meets its legal responsibilities under Executive Order 12866, the Magnuson-Stevens Fishery Conservation and Management Act (including adherence to national standards), the Regulatory Flexibility Act, the Marine Mammal Protection Act, the Endangered Species Act and the National Environmental Policy Act. The assumption was that current staffing levels (and data collection activities) are not sufficient to keep pace with increasing responsibilities and intensified scrutiny of the Agency's sociocultural and economic analyses. FTE requirements are broken out between a) economists and b) sociologists and anthropologists. In some regions, requirements above the minimum were also identified, with an 'ideal' or optimal program including staff to conduct long term sociocultural and economic research that goes above the minimum requirements to enhance the credibility of the resulting analysess.

Two broad functions for social science staff were identified: (1) management support (e.g., conduct and review of RIRs/RFAs/SIAs/National Standard 8 analyses) and (2) applied research (modeling efforts and related data collection planning and oversight). Models and analyses developed by the research component relate directly to analysis needed to evaluate and support management decisions. It was noted in each region that sociocultural and economic analyses are needed on a variety of issues, and that social science staff can contribute to all aspects of the Agency's mandates, not just fishery management decisions. For example, all regions have significant responsibilities for protected and endangered species, and habitat-related issues are becoming more prominent. In identifying staff requirements, NMFS social scientists took into account the range of analyses that would be needed to adequately satisfy the Agency's ability to develop and evaluate policies associated with the commercial and recreational fisheries harvest sectors, the processing and wholesaling sector, the trade and retail sectors, endangered and protected species, habitat, and hatchery and aquaculture activities. In addition, all regions recognize that NMFS must now also consider the effect of any actions on impacted human communities.

Findings:
Table 1 presents aggregate minimum social staff requirements by region. The specific requirements of both the minimum and ideal requirements from each of the five NMFS regions follow this summary; the individual descriptions are summarized in terms of the key needs and issues in each region, and contain more detail regarding the areas of specialty and the desired mix of FTEs by graduate degree (Ph.D.s, Master's). In each region, evaluation of minimum requirements indicated the need to more than double social science staff. In the Northwest, where there is currently only 1 economist, an even larger increase is needed.

Table 1: Assessment of Minimum Social Science Staff Requirements

	Current Staff	Additional Economists		Additional Sociologists/ Anthropologists		Total additional FTEs	Ratio of New/ Current FTEs
		Mgt. Support	Research	Mgt. Support	Research		
Northeast	8	7	5.5	3	3	18.5	2.3
Southeast	6	3.5	8	1.5	1.5	14.5	2.42
Southwest	7	4	8	3	3	18	2.57
Northwest	1	7	15	2	5	29	29
Alaska	6	5	7	1	3	16	2.67
Total	28	26.5	43.5	10.5	15.5	96	

The direct cost of hiring these FTEs is approximately $9.6M. However, it was noted by all regional social science staff that it is unrealistic to expect that this number of staff could or should be hired all at once (i.e., in FY01). First, it is doubtful that qualified staff could be found to fill these positions all at once. Second, the FTEs are based on the assumption that core data needs are fully met. The current quality and quantity of NMFS sociocultural and economic data cannot support an immediate full program development (data needs of approximately $5.5M per year were identified). These FTE requirements should be considered a mid-term goal for program development.

The most significant constraint to developing an applied research capability is the amount of time spent by current staff on management support activities. Even in regions where social science staff are placed in both the Regional Office and Science Center, staff work is primarily focused on production or review of RIR/RFA/SIAs. The number of management actions has increased over time without an equivalent increase in social science staff; the time spent producing analyses for these actions has been at the expense of short- and long-run research activities necessary to create credible science for use in the evaluation of policy. As pointed out by one Science Director, the current structure of NMFS social science staff leads the Agency to take on additional management support activities as if doing so were costless; the real cost is the reduced contribution of applied research, which is essential for an ability to do regulatory analysis, and less exhaustive analyses of management actions.

The ratio of new research FTEs to new management support FTEs ranges from 0.88-2.2; when current FTEs are included, the ratio increases (as current staff time is freed up to focus more on

research-related activities). While there is no 'correct ratio', there are economies gained by supporting research activities; as better data and models are developed to analyze and monitor the consequences of management actions, the time required to produce those analyses should decrease. To ensure that staff expertise is used most effectively and designated research positions are not re-allocated to management support activities, it is critical to keep these functions distinct from one another.

It is worth noting that there are currently 8 approved social science staff positions within Headquarters (7 economists, 1 sociologist). These positions are located in the Offices of: Science and Technology (5); Sustainable Fisheries (2); and Protected Resources (1). Within F/ST, social science staff are responsible for providing oversight for sociocultural and economic data and research; planning and coordination for sociocultural and economic research needs within NMFS; and direct provision of research, support for and communication of sociocultural and economic analysis to the Agency. Staff within F/SF are responsible for reviewing RIR/RFA/SIA analyses submitted by the regions. The role of the new F/PR economist and the relationship of this position to the field is as yet unclear (i.e., whether this position is intended to serve a review or production function).

Desired Program Features:
Several characteristics of an 'ideal' social sciences program were revealed through discussions with regional social science staff and Science Directors (and the Regional Administrator in the Southeast). For example, the ideal program must be able to:

- Separate management support and research functions, with clear relationship b/w units
- Have clear organizational reporting authority
- Separate the production of RIR/RFA/SIA analyses from the review of the analyses
- Provide unbiased analyses and results (i.e., removed from political pressures)
- Provide input at each phase of management process, beginning with initial stages of regulation development
- Incorporate region-specific knowledge and information into analyses
- Provide opportunity for multi-disciplinary research and analysis, i.e., social plus natural sciences
- Allow for interaction between data collection and analysis staff
- Control the timing/delivery of products
- Control the quality of products
- Conform to guidelines and standards for analysis
- Respond to emerging issues and redirect work to focus on high priority issues
- Allocate sociocultural and economic resources (FTEs and data collection $) to highest priority uses
- Encompass all LMR issues for which NMFS is responsible (not just fisheries, Magnuson-Stevens Act analysis)
- Maintain institutional history/memory for research and projects

Options for Implementation:

A number of options for developing this program over time were evaluated against their ability to satisfy the desired program characteristics. The options include:

1. Eliminate conduct of all management support activities (RIR/RFA/SIA analyses) from NMFS regions[1]. Options for contracting management support activities include:
    i. one national contract for all FMP-related analyses
    ii. 5 regional contracts for all FMP-related analyses
    iii. centralized HQ unit for all FMP-related analyses
    iv. give Councils responsibility for all FMP-related analyses

2. Contract out all research, NMFS staff focus only on RIR/RFA/SIA activities[1]. Options for contracting all research include:
    i. designation of an aggregate sociocultural and economic research budget, allocated to regions based on some mutually agreed upon allocation scheme (e.g., equal amounts to each region; allocation to highest priority topics regardless of region, etc.)

    ii. designation of regional sociocultural and economic research budgets; regions responsible for allocating research funds on regional basis and handling contract oversight

3. Develop core in-house capability for both functions, with some research contracted out. Options for development include:
    i. each region developing core staff for both functions to handle region-specific analyses

    ii. each region has core staff responsible for particular research areas (i.e., 'centers of excellence' with research specialties. E.g., Southwest might have lead on non-market valuation research, Northeast might focus on analysis of institutional economics).

    iii. each region has core staff but staff work in cross-regional teams to handle variety of issues not necessarily related to the region (e.g., 'tiger team' approach)

    iv. combined regional capabilities (e.g., on the West coast, one SW/NW sociocultural and economic research capability rather than two)

Social science staff recommendations were almost unanimously for Option 3.i, with the additional feature that some research would continue under contract/cooperative agreements with universities (all five regions currently fund some external social science research). A minor exception to the need to build a staff to write RIR/RFA/SIA analyses is in the Southeast, where Council staff prepare RIR/RFA/SIA analyses and NMFS Regional Office staff review, rather than produce, the analyses. The preference in the Southeast (also supported to some extent, but not preferred, in the Northeast) was for Option 1.iv. There was strong objection to Option 1.iv in the Southwest and Northwest regions. One significant divergence between the regional social

[1]Under Options 1 and 2, additional NMFS staff would be needed to oversee and monitor contracts. Number of NMFS staff needed for contract monitoring under each of the suboptions varies depending on how and where the work is conducted.

science staff and Science Director's preference for these options is in the Northeast, where the SD's recommendation is Option 1.i.

In all regions but the Northeast, the staff preference was to house management support staff in the Regional Office and research staff in the Science Center. In the Northeast, it was seen as likely that both functions would continue to operate out of the Science Center, but should work as separate units or teams. In the Northeast and Southeast, where all of the current staff work in the Science Center and Regional Office, respectively, it was noted that any staffing increases made in the complementary location should be made carefully with consideration given to the potential transition of current staff from one location to another. The Southwest and Alaska regions currently have staff in both locations and anticipate augmenting staff in both. The Northwest intends to augment staff in the Regional Office (where the 1 economist is currently located) and initiate a research program in the Science Center.

NMFS staff identified the main disadvantages of contracting out the bulk of either the management support or research activities as: lack of control over the quality and timing of products; lack of interaction between contractors and other NMFS scientists in developing analyses; the cost associated with additional time/FTEs needed to adequately oversee contracts; lack of regional-specific knowledge in analyses; and lack of commitment to the federal responsibility for stewardship of marine resources. In most regions, Council staff were seen as being too close to the political process to produce unbiased assessments of alternatives (note: this statement does not reflect the opinion of the Southeast region).

Recommendations:
1) Support phasing in proposed minimum staffing levels in both the Regional Offices and Science Centers to (1) initially assist with most critical current and developing responsibilities; (2) oversee sociocultural and economic research protocol design and implementation; and (3) conduct more thorough and sophisticated analysis and research as more and better data become available.

If done one-third at a time, the aggregate FTE cost of implementation is approximately $3.2M per year, with initial (FY01) increases of 6 staff in the Northeast, 5 in the Southeast, 6 in the Southwest, 10 in the Northwest and 5 in Alaska. Within each region, the focus and placement of additional staff would be in part dependent on current staffing. In the Northwest, for example, it may make sense to place a small core in both the Center and Region; in the Northeast, all new hires might be dedicated to management support, freeing up current staff time in the Center for research. Given only one current regional anthropologist (Northeast), at least one new hire within each of the regions should be an anthropologist or sociologist. All regional staff were able to identify where the most critical needs are and can assist with prioritizing placement of new staff when funds become available.

Under this staging alternative, the most rapid scenario for implementation would require

initiatives of $3.2M (and equivalent increases in staff) in each of the FY01, FY02 and FY03 budgets. Feedback from the Science Board is needed regarding how quickly to proceed in completing such a staging plan.

2) As stated previously, significant increases in staff cannot be supported at the current level of sociocultural and economic data collection. Thus, funding for the data component of this program should be an integral component of the initiative (~$5.5M per year in regional data needs).

3) Ensure that management and research units are distinct from one another in each region, either geographically (using the Region/Center breakout) or organizationally (in separate units within one Regional Office or Center).

Descriptions of individual regional requirements follow.

Alaska Region Social Sciences Program:

Assumption: Currently 2 economists work for the regional office, and 4 economists work for the Center. North Pacific Council has 2 economists. Social science management support functions would be separated from long-term research/analysis functions. It was assumed that Regional Office and Council staff would be responsible for RIR/RFA/SIA type analyses, while the Science Center staff would focus on development of surveys and models to support the management decision-making process, as well as monitor the economic performance of fisheries over time. It was also assumed that cooperative arrangements for data collection with the Pacific States Marine Fisheries Commission would continue.

Data requirements: ~ $300K per year in data collection, of which $250K would be for commercial fisheries (cost-earnings, regional expenditures, economic logbooks, and employment). Another $50K per year was identified for addressing protected/endangered species issues (e.g., contingent valuation studies). Recreational fisheries are primarily under the purview of the State of Alaska, and no additional data needs were identified for this sector (only the developing halibut charter boat fishery has some federal implications). There are other ongoing data collection efforts (FIS, AKFIN, e.g.) that supplement or reiterate these data needs. Verification of industry-provided data is seen as a critical issue that needs to be dealt with at both a national and regional level, from the standpoint of setting standards and guidelines for quality control/quality assurance, and for budgetary purposes (i.e., who should pay for this quality assurance?).

Staffing requirements:
Two functions within the Alaska region: management support and research. Current placement of staff in both the regional office and science centers would support this separation of functions.

By each of these two functions, AK staff looked at requirements from the standpoint of major kinds of analyses needed to handle the key issues in the region, and came up with minimum requirements for a social sciences program encompassing the Alaska region. Minimum requirements were defined as those necessary to meet legal obligations (current and anticipated). As opposed to other NMFS regions, additional staff were not requested at an 'optimal' level-- i.e., the minimum and optimum were essentially the same.

Management Support component:
At a minimum, 6 additional FTEs were identified as needed to support the RA and Councils (3 Ph.D./Master's level economists and 1 sociologist, and 2 Bachelor's level economists); emphasis areas were in support of RIR/RFAs and in satisfying National Standard 8 requirements. Increases were due primarily to work related to amendments to current FMPs and regulations (rather than development of new FMPs). These staff would be part of the Regional Office.

Research component:
At a minimum, the Alaska region needs 10 additional FTEs on staff, plus an additional 2.5 FTEs under contract to adequately address the region's research needs. Four Ph.D. level economists are

needed with specialized training in: demand modeling, production theory, econometrics, non-market valuation and regional economics. 3 Bachelor's/Master's level FTEs with training in accounting, financial auditing, and computer programming (particularly ORACLE and GIS applications) are needed as support staff for managing economic data and assisting with production of SAFE reports. One rural sociologist, one fishery anthropologist (both Ph.D./Master's level), and one Bachelor's/Master's level support staff, are needed to conduct work related to satisfaction of National Standard 8 requirements. Two FTEs under contract were identified to assist with the economics component of the research capability; another ½ FTE under contract would assist with the sociological component. All of these staff would be included in the Science Center.

Current and emerging issues that have socioeconomic consequences include: allocation issues, primarily in commercial fisheries; marine mammal/commercial fisheries interactions (e.g., sea lions/pollock); and bycatch. It was felt that some of the non-market valuation work would be better handled under contract with academics, particularly for issues that might be controversial or likely to be litigated. The Center also intends to builds the capability to monitor economic performance of fisheries over time, and to develop predictive models of fleet behavior. Neither habitat valuation nor research related to aquaculture has been an important social science issue in Alaska.

FTE cost of minimum implementation = $1.6 M; $250K in contract staff

At the proposed staffing levels, a mix of Ph.D.s and master's level staff is likely (as indicated above). For the research component, the majority of new hires would be at the Ph.D. level, with emphasis on candidates with more specialized backgrounds as indicated. For the management support staffing, candidates with more of a generalist's ability to prepare RIR/RFAs for a range of management actions would be appropriate.

Additional staffing requirements for Alaska Region/Center
(in addition to 6 existing FTEs)

	Minimum (above current)	
	Mgt support	**Research**
Emphasis areas:		
RIR/RFA	5	
SIA/N.S. 8	1	2
Demand modeling		.5
Production theory		1
Econometrics		1
Non-market valuation		.5
Regional economics		1
Acct., financial audit., data support		4 (3 econ, 1 socio)
Totals, by functions	6	10
Total	16	
Minimum: 3 additional sociologists/anthropologists, 9 economists, 4 'support staff' Including current staff ==> 22 FTEs		

Recommended staffing requirements for the Council
(includes current staff)

	Economists	**Sociologists/Anthropologists**
N. Pacific Council	2	?

Northwest Region Social Sciences Program:

Assumption: Currently 1 economist works for the regional office; there are no social scientists at the Center. The Pacific Council has 1 economist. Currently, Council work for the NWR is handled, by mutual agreement, by the AKR/C and the SWR/C. When NWR staff are in place, AKR/C staff would be re-assigned to support the North Pacific Council and/or AKR/C needs. FTEs accounted for here assume that the current staffing level at the Pacific Council remains the same.

Social science management support functions would be separated from long-term research/analysis functions. It was assumed that Regional Office and Council staff would be responsible for RIR/RFA/SIA type analyses, while the Science Center staff would focus on development of surveys and models to support the management decision-making process. It was also assumed that cooperative arrangements with the Pacific States Marine Fisheries Commission for data collection would continue or would require additional FTEs in NMFS.

Data requirements: ~ $775K per year in data collection, of which $250K would be for commercial fisheries; $125K per year for recreational fisheries, including in-river fisheries; $300K per year for non-market valuation surveys of protected and endangered species as well as habitat valuation. Another $100K per year was identified for collection of community-level data. There are other ongoing data collection efforts (FIS, EFIN, e.g.) that supplement or reiterate these data needs, and it should be noted that these funds would be combined with Southwest region funds to achieve cost savings associated with survey design and implementation. Further, these data needs were developed largely from the status quo programs and are expected to grow by at least 20% as the capabilities of the proposed program increase. The need for an 'economics statistician' to assist with survey design and implementation was included in FTE requirements for this program.

Staffing requirements:
Two functions within the Northwest region: management support and research. NWR/C staff indicated a preference for developing these functional capabilities in the Regional Office and Science Center, respectively.

NW staff looked at requirements for management support and research activities from the standpoint of major kinds of analyses needed to handle the key issues in the region, and came up with minimum requirements for a social sciences program encompassing the Northwest region. Minimum requirements were defined as those necessary to meet legal obligations (current and anticipated). This region is distinct from the other 4 NMFS regions in that there is currently no core social science program in either the Regional Office or Science Center. Hence, additional staff were not requested at an 'optimal' level-- the requirements described entail development of a core program based on starting 'from scratch.'

Management Support component:

At a minimum, 9 additional FTEs were identified as needed to support the RA and Council. These staff would be part of the Regional Office. Two economists would handle RIR/RFA work associated with the two existing FMPs , while a third would handle all other aspects of Council-related work. Three economists are needed to handle RFA work associated with protected/endangered species issues as well as inter-agency committee work dealing with salmon/habitat issues. An additional economist at the Bachelor's/Master's level is needed for summarization and manipulation of wholesale price data, cold storage data, Fisheries of the United States reports, etc. Two sociologists are needed to handle National Standard 8 requirements, as well as to conduct SIAs associated with protected species and habitat actions.

Research component:
At a minimum, the Northwest region identified a staffing core of 20 FTEs to adequately address the region's research needs. All of these staff would be located in the Science Center. Four sociologists are needed to address research and analysis of community-level impacts due to management of the commercial and recreational harvest sectors, and actions relating to endangered species and the associated habitats of those species. One anthropologist is needed to address the numerous subsistence fishery issues from tribal fishing rights. Five economists are needed to conduct research on the commercial fishing/processing sectors, particularly as management addresses the issue of overcapacity in this sector. In addition, there is a strong need to incorporate more sophisticated socio-economic information into the salmon models for assessment of the consequences of management alternatives.

Eight economists with a specialization in non-market valuation would focus research on recreational fisheries harvest (2 economists), protected species (3) and habitat (3) valuation. A need to quantify the benefits of conservation/preservation of endangered species was identified, particularly as costs of preservation mount. There are also critical gaps in information about benefits-transfer associated with habitat restoration, and costs of habitat mitigation. Analysis is needed for socio-economic impacts of no-take reserves and implementation of essential fish habitat. Cost-benefit analyses of hatchery and hydropower dam removals are also needed in this region.

Finally, 2 economists were identified to conduct research on the emerging aquaculture sector, from the standpoint of assessing costs and benefits of environmental consequences of aquaculture siting (or removal of existing hatcheries), and from a marketing/product development aspect.

Overriding all of these is the need to have staff involved in development of pro-active solutions to resource issues. This group needs to be able to both 'think out of the box' and provide managers with sound and persuasive analyses of these multi-objective options.

The most significant issues in the Northwest region with socioeconomic consequences include: reduction of capital in the groundfish fisheries; endangered species (salmon)/habitat; and community impacts. The predominance of endangered (salmon) species and habitat valuation/water use issues are somewhat unique to the Northwest region, although shared to some extent by the Southwest region. Much of the NMFS-required work is non-fisheries/non-Council-

related and involves understanding interactions with other sectors (agriculture, forestry, e.g.); this work also requires inter-agency research and cooperation.

FTE cost of minimum implementation = $2.6 M

At the proposed staffing levels, a mix of Ph.D.s and master's level staff is likely. For the research component, the majority of new hires would be at the Ph.D. level, with emphasis on candidates with more specialized backgrounds as indicated. For the management support staffing, candidates with more of a generalist's ability to prepare RIR/RFAs for a range of management actions would be appropriate (includes 1 Bachelor's level FTE).

Additional staffing requirements for Northwest Region/Center
(in addition to 1 existing FTE)

	Minimum (above current)	
	Mgt support	**Research**
Emphasis areas:		
Commercial harvest	1.5	4
Recreational harvest	1.5	2
Processing/wholesale	1	1
Trade		
Aquaculture		2
Protected/endangered spp	1.5	4
Habitat	1.5	3
Communities/NS 8	2	4
Totals, by functions	9	20
Total	29	
Minimum: 7 sociologists/anthropologists, additional 22 economists Including current staff ==> 30 FTEs at minimum		

Recommended staffing requirements for the Council*
(includes current staff)

	Economists	**Sociologists/Anthropologists**
Pacific Council	1	0

*Note: if Council staff were to increase, FTEs under Management Support in the Regional Office could be reduced by the equivalent numbers.

Southwest Region Social Sciences Program:

Assumption: Currently 2 economists in regional office (one in Long Beach, one in Honolulu), and 5 economists in Centers/labs (2 in La Jolla, 2 in Santa Cruz, 1 in Honolulu). Social science management support functions would be separated from long-term research/analysis functions (either geographically or functionally within one location/office). Staffing requirements were based on the assumption that the Northwest region would add at least 2 economists (one focused on commercial fisheries, one on recreational fisheries). Recommendations were made for increasing Councils' staff; requirements of the regional office and science center were contingent upon having these staff in place. Finally, data management/support staff are not included in the social science staffing requirements, although needs for additional support for these functions were noted.

Data requirements: ~ $1.425M per year in data collection, of which $600K would be for survey implementation in California, and $825K in the Western Pacific. It should be noted that of the $825K, $700K is for recreational fisheries data that would include catch/effort and participation data as well as socio-economic data (i.e., since the MRFSS is not conducted in the W.Pacific, funds need to be dedicated to the design and implementation of this primary data). There are other ongoing data collection efforts (FIS, West PacFIN, e.g.) that supplement or reiterate these data needs.

Staffing requirements:
Two functions within the Southwest region: management support and research. Envision two separate/independent units or teams handling aspects of each. Current placement of staff in both the regional office and science centers/labs would support this separation.

By each of these two functions, SWR staff looked at requirements from the standpoint of major kinds of analyses needed to handle the key issues in the region, came up with minimum and optimum requirements for a social sciences program encompassing the Southwest region. Minimum requirements were defined as those necessary to meet legal obligations. Then identified additional FTEs needed to develop an 'ideal' program, one where NMFS 'does the right thing' in terms of proactive social science research.

Management Support component:
At a minimum, 7 additional FTEs were identified as needed to support the RA and Councils; emphasis areas were in support of ESA salmon/habitat work (2 economists), in conduct of RFAs (1 economist) and in satisfying National Standard 8 requirements (3 sociologists). Increases were due primarily to work related to amendments to current FMPs, the pending Coastal Pelagics FMP, evaluation of emerging fisheries (e.g., sardines, the live fish fishery (rockfish)) and expansion of responsibilities under ESA and EFH requirements.

At the optimal/ideal level, for Management Support, an additional 2 FTEs would be located on the West coast to assist with increasing RIR/RFA and to develop long-term predictions of fishery- and non-fishery-related sectoral changes due to management regulations.

Research component:
At a minimum, the Southwest region needs 11 additional FTEs (6 in the West coast, 5 in the Western Pacific) to adequately address the region's research needs. Current and emerging issues that have socioeconomic consequences include: marine mammal/commercial fishing interactions; selected fishing regulations/hatchery-sponsored fishing; habitat restoration/ecosystem services valuation; capacity reduction; analysis and development of ITQ programs; and development of marine sanctuaries. Of the eleven additional staff, 3 would be non-market valuation specialists, with work applied to recreational fisheries issues, and habitat and marine mammal valuation work. Another four would be dedicated to commercial fisheries issues (at least one to salmon). These staff would participate on the salmon, groundfish and coastal pelagics technical teams. Three sociologists would be responsible for research on fishery-dependent communities and development of models for use in SIAs and satisfaction of N.S. 8. The final FTE's responsibilities would be to conduct I/O work in the areas of commercial/recreational fisheries as well as habitat/ESA in the Western Pacific.

At the optimal level, an additional 2 FTEs are required to conduct research on international trade/marketing, and on more complex habitat valuation issues. Particularly in the W. Pacific, it was felt that any additional research (ie, above the 'minimum' identified) should be conducted through the use of contracts with universities and through an existing IPA, rather than by increasing long-term NMFS FTEs.

FTE cost of minimum implementation = $1.8 M; 'ideal implementation' = $2.2 M

At both the minimum and ideal level, a mix of Ph.D.s and master's level staff is likely. For the research component, the majority of new hires would be at the Ph.D. level, with emphasis on candidates with more specialized backgrounds (e.g., in non-market valuation, regional economics, institutional analysis, etc.). For the management support staffing, master's level candidates with more of a generalist's ability to oversee and review research in a number of areas would be appropriate. For the sociologists/anthropologists positions, however, it was felt that only staff with Ph.D.'s should be hired.

Additional staffing requirements for Southwest Region/Center
(in addition to 7 existing FTEs)

	Minimum (above current)		Optimum (above minimum)	
	Mgt support	**Research**	**Mgt support**	**Research**
Emphasis areas:				
Commercial harvest	.5 (Pac)	4.5 (2 Pac., 2.5 WPac)	1 (Pac)	
Recreational harvest	.5 (Pac)	3.5 (2 Pac., 1.5 WPac)	1 (Pac)	
Processing/wholesale	.5 (W.Pac)			
Trade	.5 (W.Pac)			1 (Pac)
Aquaculture				
Protected/endangered spp	1 (Pac)			
Habitat	1 (Pac)			1 (Pac)
Communities/NS 8	3 (2 Pac., 1 WPac)	3 (2 Pac., 1 WPac)		
Totals, by functions	7	11	2	2
Total	18		4	

Minimum: 6 additional sociologists/anthropologists, 12 economists
Optimal: 0 additional sociologists/anthropologists, 4 economists (above minimum)

Including current staff ==> 25 FTEs at minimum, 29 staff under optimal program

Recommended staffing requirements for the Councils
(includes current staff)

	Economists	Sociologists/Anthropologists
Pacific Council	2	?
W. Pacific Council	1	1

Total	3	1

Southeast Region Social Sciences Program:

Assumption: Currently 7 staff, including one secretary, work out of the SERO, none from the SEC. Current division of labor between Councils (Gulf, S.Atlantic, Caribbean) and SERO would continue, with Councils providing RIR, SIA analysis for review by SERO. Social science management support functions would be separated from long-term research/analysis functions (either geographically or functionally within one location/office). It was assumed that protected species work would be conducted by the HQ economist (to be hired). It is unclear how Essential Fish Habitat issues will affect the economics unit; other habitat-related issues could fall primarily under the purview of NOS. Finally, recommendations were made for increasing Council staff; requirements of the regional offices were contingent upon having these staff in place.

Data requirements: ~$1.5M - $1.6M per year in data collection (primarily at the commercial and recreational harvest sectors, and for collection of sociological/community-level data.. There are many other ongoing data collection efforts (ACCSP, FIS, MARFIN contracts) that supplement or reiterate these data needs.

Staffing requirements:
Two functions within the Southeast region: management support and research. Envision two separate/independent units or teams handling aspects of each.

By each of these two functions, SERO staff looked at sector-by-sector requirements, came up with minimum and optimum requirements for a social sciences program encompassing the Southeast region. Minimum requirements were defined as those necessary to meet legal obligations. Then identified additional FTEs needed to develop an 'ideal' program, one where NMFS 'does the right thing' in terms of proactive social science research.

Management Support component:
At a minimum, 5 additional FTEs were identified as needed to support the RA and Councils; emphasis areas were in the commercial and recreational harvest sectors and in satisfying National Standard 8 requirements. Increases were due primarily to anticipated future FMPs (in addition to work related to amendments to current FMPs) and management support for new management alternatives (eg, ITQs).

At the optimal/ideal level, for Management Support, an additional 3.5 FTEs are necessary, with the emphasis on National Standard 8 and Social Impact Analysis work.. The small distinction between the minimum and the ideal also reflects the assumption that the Council staff will increase staff/output as additional FMPs come online.

Research component:
At a minimum, the Southeast region needs 9.5 additional FTEs. Five of these would be dedicated to the analysis of commercial fisheries issues; the others have responsibility over N.S. 8 issues,

and the analysis of recreational fisheries and the processing and trade sectors. The increase in commercial fisheries economists is due partially to the increased ability to analyze issues quantitatively as data collection in the Southeast increases, and partially to the expected lifting of the moratorium on ITQs, which will necessitate the ability to evaluate more/different management alternatives. In addition, the regional Councils have begun to discuss making allocation decisions based on economic value, rather than historical participation. Staff are needed to conduct the long-term development and estimation of models that support these decisions. The numbers *do not* reflect the need for additional staff if Essential Fish Habitat issues become significant. The current ambiguity regarding the implications of this topic make it difficult to predict the number and type of staff that will be needed.

At the optimal level, an additional 7 FTEs are required to conduct research critical to the Agency's ability to more effectively manage for sustainability. The biggest increases between the optimal and the minimum level are due to staff dedicated to the analysis of recreational fisheries issues and to N.S. 8. It is anticipated that in the long run, the recreational fisheries sector will continue to expand, and management issues associated with this sector will increase.

FTE cost of minimum implementation = $1.45 M; 'ideal implementation' = $2.5 M

At both the minimum and ideal level, a mix of Ph.D.s and master's level staff is likely. For the research component, the majority of new hires would be at the Ph.D. level, with emphasis on candidates with more specialized backgrounds (e.g., in non-market valuation, regional economics, institutional analysis, etc.). For the management support staffing, master's level candidates with more of a generalist's ability to oversee and review research in a number of areas would be appropriate.

Additional staffing requirements for Southeast region (in addition to 7 existing FTEs)

	Minimum (above current)		Optimum (above minimum)	
	Mgt support	**Research**	**Mgt support**	**Research**
Emphasis areas:				
Commercial harvest	1	5		
Recreational harvest	1	1		3
Processing/wholesale		1		.5
Trade		1		.5
Aquaculture	.5		.5	
Protected/endangered spp	.5			
Habitat	.5			
Communities/NS 8	1.5	1.5	3	3
Totals, by functions	5	9.5	3.5	7
Total	14.5		10.5	

Minimum: 3 additional sociologists/anthropologists, 11.5 economists
Optimal: 3 additional sociologists/anthropologists, 7.5 economists (above minimum)

Including current staff ==> 21.5 FTEs at minimum, 32 staff under optimal program

Recommended staffing requirements for the Councils

	Economists	**Sociologists/Anthropologists**
Gulf Council	2	1
South Atlantic Council	2	1
Caribbean Council	1	1
Total	7	3

Northeast Region Social Sciences Program:

Assumption: NEFSC staff would handle both council/regional-type analysis and long-term research; perhaps separate out functions (teams?) to ensure unbiased approach. All social science staff would be located in one unit (e.g., an economist working on protected species issues would not report to the PR division, but to the social sciences division).

Data requirements: ~$1.1M - $1.3M per year in data collection (primarily at commercial harvest, processing, recreational harvest, and funding for regional social science needs (anthropology, sociology studies). Need to determine ACCSP/FIS budget commitments before settling on a figure. Many other ongoing data collection efforts to supplement data collection in Northeast.

Staffing requirements:
Two functions within NEFSC: management support and research. Envision almost two separate units handling aspects of each.

By each of these two functions, NEFSC staff looked at sector-by-sector requirements, came up with minimum requirements in short- and long-run, with short-run defined as within the next year, long-run more of a long-run equilibrium minimum. Minimum requirements were defined as those necessary to meet legal obligations. For the minimum requirements, broke out contracting FTEs versus in-house FTEs. Then identified additional FTEs needed to develop an 'ideal' program, one where NMFS 'does the right thing' in terms of proactive social science research.

Management Support component:
In short-run, at a minimum, NEFSC needs to contract out approximately 22 FTEs to establish baseline community-level information(assumption was 2 staff per state x 11 states), and hire 9 FTEs, with a mix of economists, anthropologists, and sociologists. These staff would be dedicated primarily to RIR/PDT-type work, to ease current constraints on time/quality of analysis due to shortage of staff time. While NEFSC staff currently support the New England Council quite a bit, support to the Mid-Atlantic council is expected to increase significantly in the near future (fluke, dogfish). SIA/N.S. 8 requirements were based on the assumption that the most disaggregated data and analysis would be necessary (eg, a 'Dumar' effect).(8 plans * 4 months of staff time per framework adjustment).

In the long-term, satisfying minimum agency requirement's will necessitate approximately 16 staff over current staffing levels, split between 6 contracted FTEs and 10 NMFS staff (or 10 contract, 6 NMFS staff). The bulk of FTEs would support PDT/RIR analysis (4 FTEs), and work on or oversee National Standard 8, Social Impact analysis (4 FTEs). FTEs are also needed for recreational demand analysis, analysis of protected/endangered species issues and processing/wholesaling issues. Better analysis of management alternatives (PDT and RIR work) for the commercial harvest sector was identified as an area that needed most additional dedication of staff time. Analysis of National Standard 8 and SIAs was the other most critical area in need of dedicated staff..

At the optimal/ideal level, for Management Support, an additional 8 FTEs are necessary, with the emphasis on FTEs to support pro-active PDT work (3) and National Standard 8 and Social Impact Analysis work (3). The distinction between the minimum and the ideal is the nature of the work and the time available to do it; in the minimum, analysis is primarily reactive, ex poste analysis of proposed management alternatives. In the ideal, staff would concentrate on acting pro-actively, and work with Councils to propose/predict new alternatives so that social and economic consequences are considered before decisions are made.

Research component:
At a minimum, in the short-run the NEFSC needs 1 FTE under contract (for EFH requirements) and 1.5 FTE within NMFS (for analysis of new management measures and upcoming fishing vessel buyout packages). In the long-run, minimum requirements dictate an additional 4.5 FTEs under contract and 5.5 more within NMFS. Responsibilities are spread fairly among analysis of EFH, new management measures, recreational fishing, protected species, trade and processing/marketing issues.

At the optimal level, an additional 5 FTEs are required to conduct research critical to the Agency's ability to more effectively manage for sustainability. Research would concentrate on institutional analysis of property rights and regional economics modeling, as well as refine the Agency's ability to address recreational fisheries valuation and protected species issues (ie, nonmarket valuation work). Large marine ecosystem work is also anticipated to continue and expand to be a significant focus of research. LME research will be a component of the work program of existing staff and will be a prime focus of additional staff.

FTE cost of LR-minimum implementation = $2.6M; 'ideal implementation' = $3.9M

At both the minimum and ideal level, a mix of Ph.D.s and master's level staff is proposed. For the management support staffing, however, candidates would need to be 'generalists' able to conduct research in a number of areas. For the research staffing, candidates with more specialized backgrounds (e.g., in non-market valuation, regional economics, institutional analysis, etc.) would be sought.

	Minimum FTEs				Ideal FTEs
	Short-run		Long-run		
	Contracted	In-house	Contracted	In-house	
Mgt support					
PDT, RIR		4	(4)	4	3
N.S. 8, SIAs		4	4	3	3
Subsistence					
EFH					1
Rec'l		1		1	
Protected Spp			1	1	
Processing/wholealing /retail			1	1	
Trade					1
Aquaculture					
Total		9	6	10	8
Short run minimum = 9, long run minimum = 16, ideal= 24					
Research					
New mgt measures		1		2	1/2
EFH	1			1	1
N.S. 8, SIA					
Subsistence					
Rec'l			1		1/2
Protected spp			1	1	1/2
Processing/wholesaling/retail			1	1	
Trade			1	1	

Aquaculture			1/2		
LMEs					1/2
Regional economics					2
Other		1/2		1/2	
Total	1	1.5	4.5	6.5	5
Short run minimum = 2.5, long run minimum = 10, ideal= 15					
Grand total: Short run minimum = 11.5, long run minimum = 26, ideal= 39					